

Operational description

BMW Desktop KeyReader Plus

Model name: KR0304

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1. Structure of the Desktop KeyReader Plus

The Desktop KeyReader Plus consists of the following components:

Housing (upper part, light guide, antenna housing, lower part)

- PCB (main board)
- antennas
- USB cable
- Plug / grommet / rubber damper
- Sponge rubber support pad

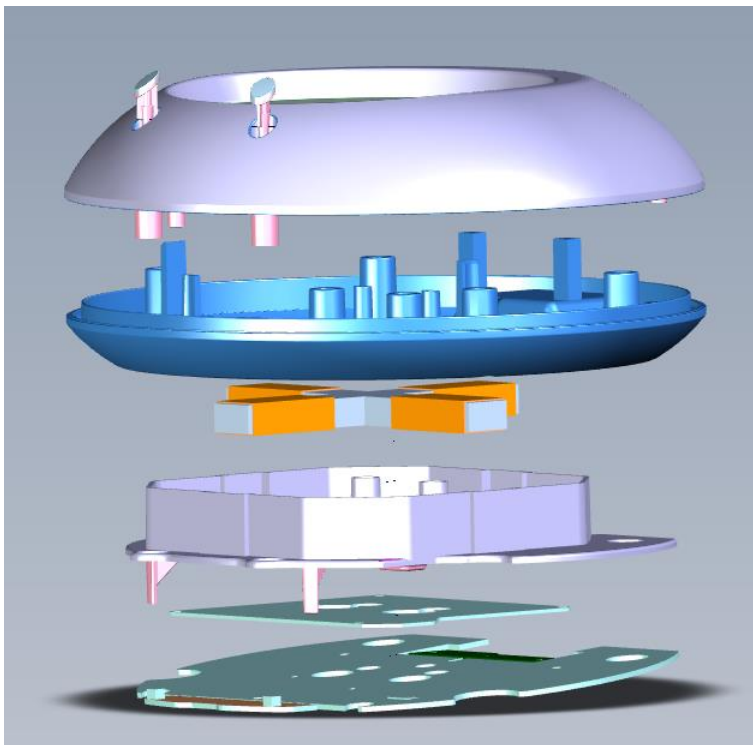


Figure 1: Schematic resolution of the desktop KR+

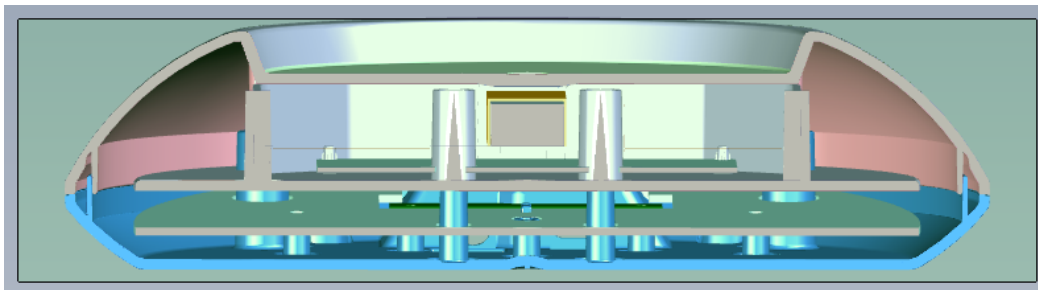


Figure 2: Cross section

2. Housing

The housing parts top shell, antenna housing and bottom shell are made of PC/ABS colored in RAL5003.

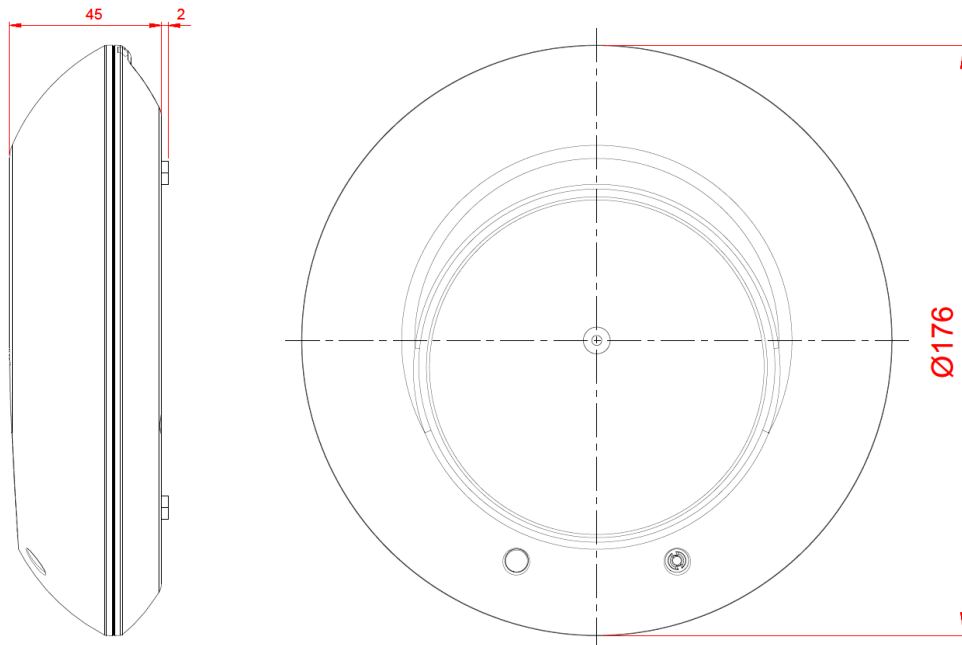


Figure 3: Dimension Desktop KeyReader Plus

The weight of the Desktop KeyReader Plus is 550 grams +/- 10%.

2.1. Upper part

The upper part is painted in the color RAL5003. Likewise, the eroded structure of the round tray.



In the front area of the upper part there are two troughs into which the optical fibers are clipped.

Figure 4: Upper part

2.2. Antenna housing

The antenna housing is located between the lower and upper shells and, because it is installed in the interior, is not painted.

The 13.56MHz antenna and both ferrite antennas (orthogonal to each other) are installed in the antenna housing.

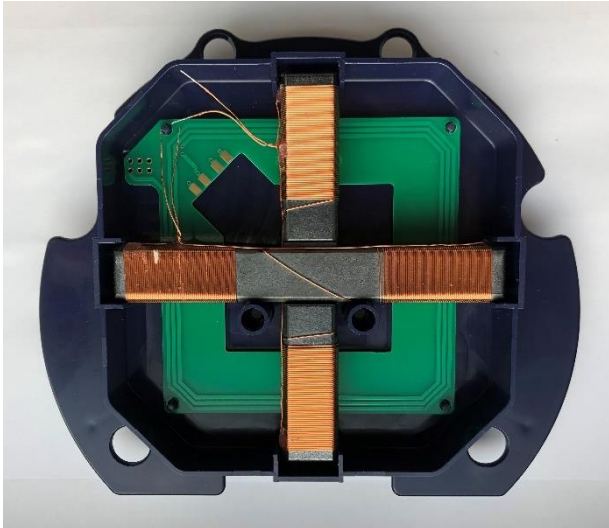


Figure 5: NFC and ferrite antennas

Then the antennas are completely cast.

2.3. Lower part

The lower part, like the part shell, is painted in the color RAL5003.

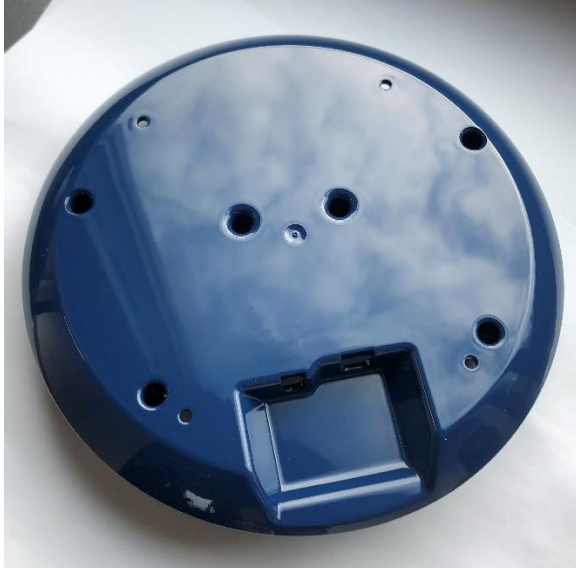


Figure 6: Lower part bottom side

2.4. Optical fibers

The polystyrene (PS) optical fibers have been milky opacified to create a diffuse effect.



Figure 7: Optical fibers

The light guides are permanently fixed by clipping them into the recesses of the top shell. After mounting the top shell on the bottom shell, the light guides are located just above the LEDs.

3. Main board (PCB)

The following components / assemblies are arranged on the main board:

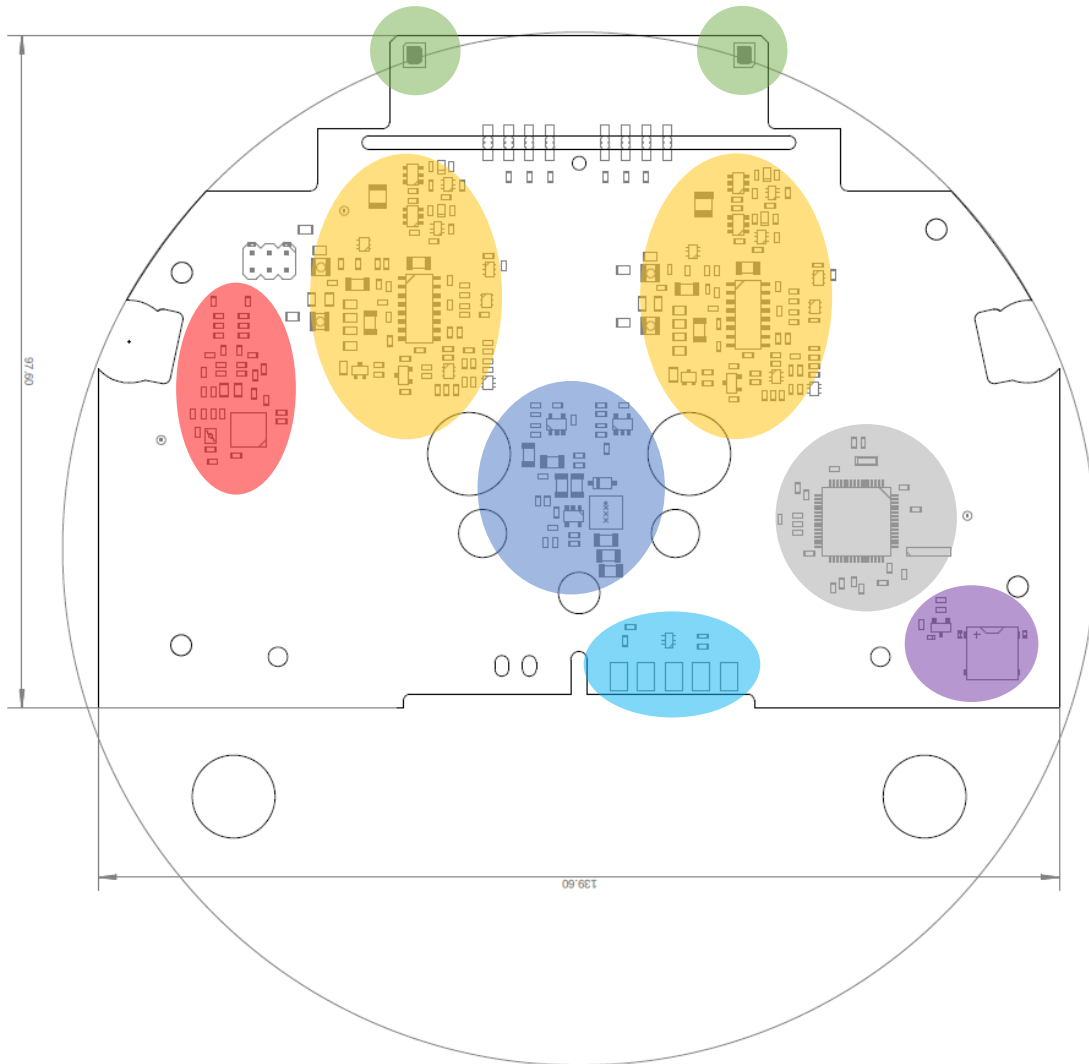


Figure 8: Layout main board

Green areas: LEDs (left RGB, right white)

Yellow areas: 125kHz circuits

Red area: 13.56MHz circuit

Blue area: Power management with up-down converter

Gray area: Processor

Turquoise area: USB with protection circuitry

Purple area: Piezo speaker

3.1. Datasheet

The datasheet is attached at the end of this document.

4. Antennas

Two types of antennas are used with the Desktop KeyReader Plus:

4.1. 13,56MHz antenna

The NFC antenna is placed below the ferrite antennas and potted (see Figure 5: NFC and ferrite antennas).

Dimensions: 89,0 x 80,0 x 1,0 mm

The output power is 1W.

4.2. 125kHz antenna

The ferrite antennas are placed orthogonally to each other in the antenna housing and fixed by potting (see Figure 5: NFC and ferrite antennas).

The output power is max. 2W.

5. USB cable

The plug for connection to the PC has the standard USB Type-A. The cable has a length of 1.80m and is open at the end for easy soldering to the PCB.



Figure 9: USB cable

6. Operation of the device

The Desktop KeyReader Plus is a stationary device for reading vehicle key data.

The device is powered via the USB port of a PC. Data communication also takes place via the same USB line.

To read the data, a 125 kHz and 13.56 MHz field is alternately generated to read all supported key types.


As soon as a key is placed in the well and recognized, the readout process starts completely automatically. Recognition and completion of the read-in are indicated by a visual and audible signal.

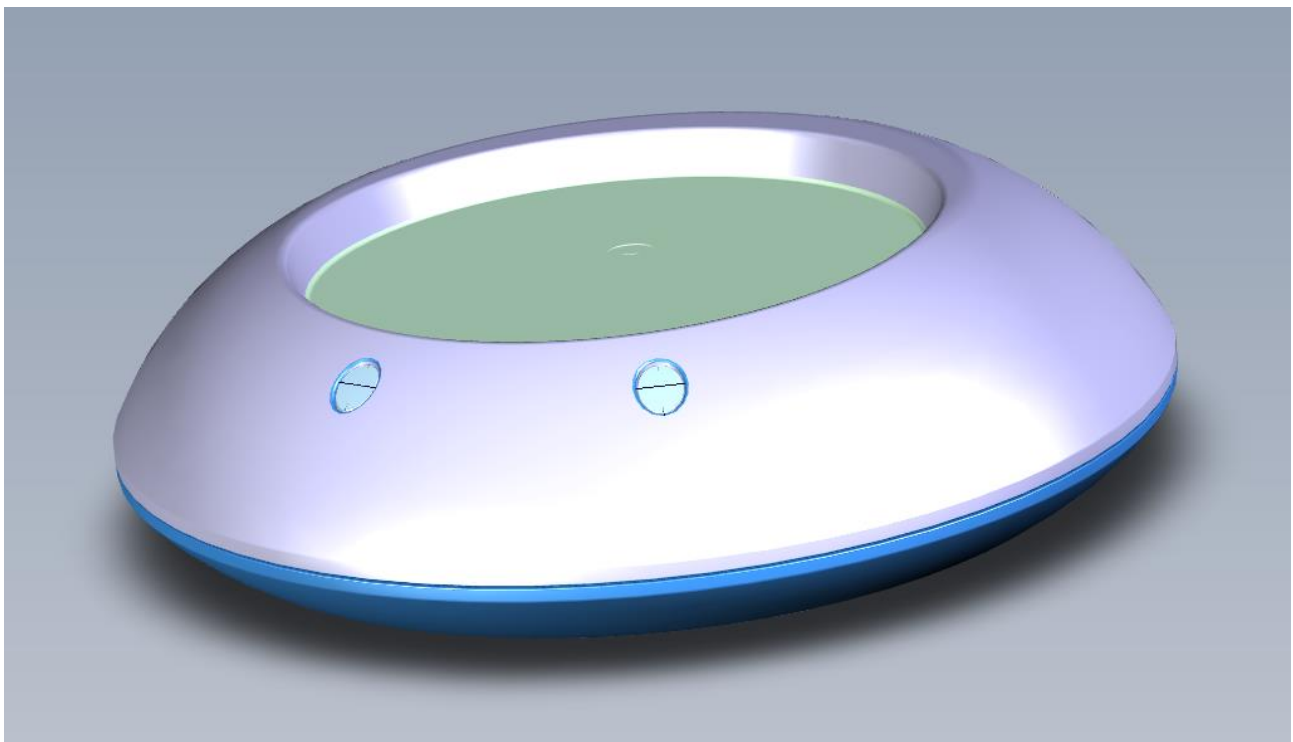
Once all the data has been read, it is immediately sent via the USB line to an application installed on the PC.

In addition to the usual vehicle keys, VIN cards (HID) and NFC-enabled media are also supported.

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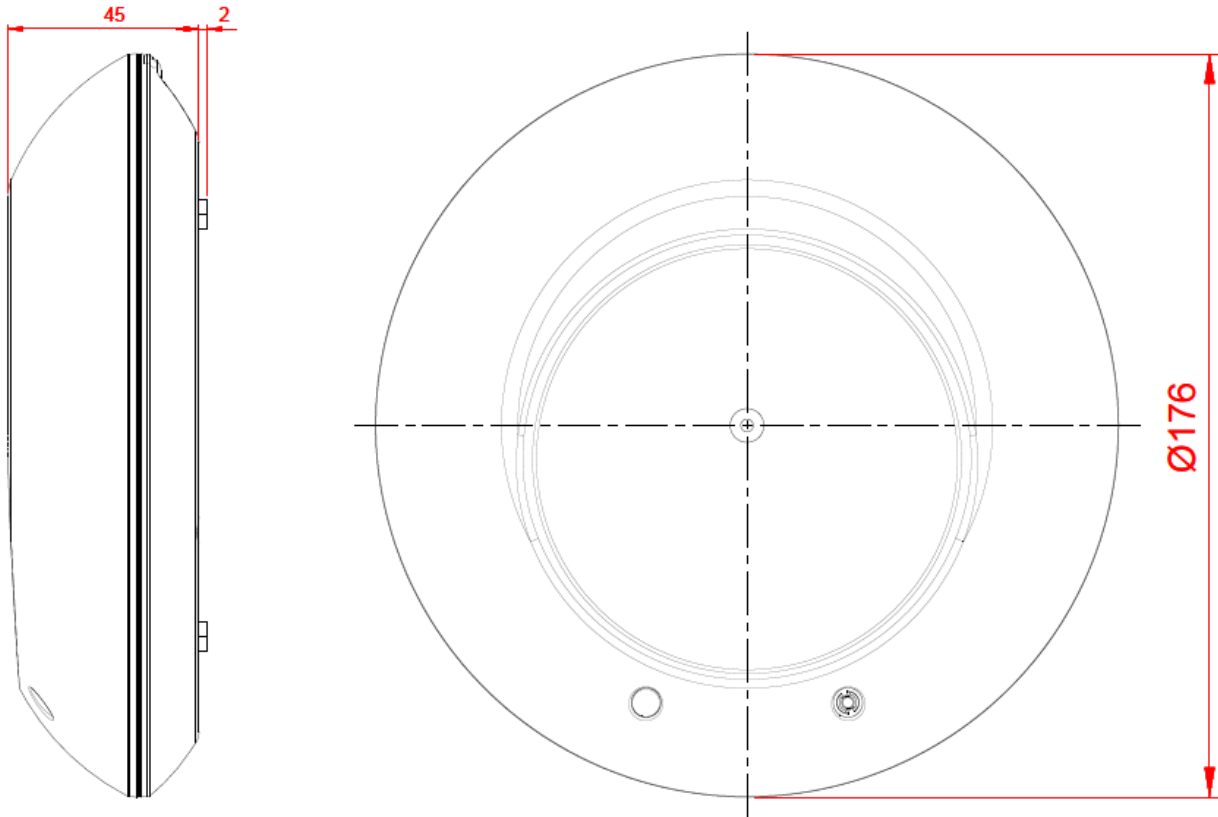
TeraTron GmbH, Martin-Siebert-Str. 5, 51647 Gummersbach

Desktop KeyReader Plus	
Power supply	5VDC via USB connection (from PC)
Current consumption	max. 0,5A
Interface	USB 2.0 (device via cable to USB A male), 125kHz RFID, ASK modulation (OOK), integrated antenna (ferrit coil), 13,56MHz RFID, ASK modulation, integrated antenna (PCB loop)
Supported transponder frequencies	125kHz, 13,56MHz
Indication of transponder detection	LED-light transfer by fiber-optic, Speaker
Operating temperature range	0°C ... +45°C
Storage temperature range	-20°C ... +60°C
Degree of protection by enclosure	IP 53 (DIN 40 050)
Protection class	
Operational area	Indoor
Dimension (Ø x H)	176 mm x 47 mm
Weight	550 g +/- 10%
Certification	CE, FCC, IC
Accessories	



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1.1	27.10.2020	SAL	MMO		1 von 2	

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